

Work Order ID 140988
 Tuesday, January 26, 2016 3:17:36 PM

647.8914
 B140988
 REV. C2

140988

Item ID: 647.3914 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Breakaway Tip, Long
 Start Date: 1/15/2016 Start Qty: 6.00 ***6*** Cust Item ID:
 Required Date: 1/26/2016 Req'd Qty: 6.00 ***6*** Customer:
 Reference:

Approvals: Process Plan: MJS Date: JAN 28 2016 Tooling: Date: Run Start ***NR1***
 QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
647.3900	C2								

100 0.00 ***100*** BAND SAW 6 0 DAS 20 9-89 16-04-09
 Bandsaw Memo 0.00
 Jeaspa Bandsaw Cut Blank at 14.500"

110 0.00 ***110*** HAAS CNC VERTICAL MACHINING #1 6 0 DAS 20 9-89 16-04-11
 HAAS 1 Memo 0.00
 HAAS CNC vertical machine #1 1-Machine per folio FB315
 DWG REV: C
 FOLIO REV: AA
 2- deburr and break all sharp edges

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____			
Misidentified ☐		Past Due ☐					

Work Order ID 140988

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Page 2

Item ID: 647.3914

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Breakaway Tip, Long

Start Date: 1/15/2016 Start Qty: 6.00

6

Cust Item ID:

Required Date: 1/26/2016 Req'd Qty: 6.00

6

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00				<u>6</u>	<u>0</u>		DAS 20 9-89 16-04-11
120									
QC	Memo	0.00							
Quality Control									
130	QC8- Inspect parts - second check	0.00				<u>6</u>	<u>0</u>		DAS 08 9-89
130									
QC	Memo	0.00							
Quality Control									
140	Outsource process-Anodize per QSI017 4.1.10.1	0.00				<u>6</u>			DAS 13 9-89
140									
Outsource4	Memo	0.00							
Outsource process - Anodize	Issue P/O to ATG : <u>32009</u>								
	1- Black Anodize as per Dwg 647.3900								
	2- PRIME AS PER DWG, SEE NOTE #9								
	Certification of Conformity is required								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
		OTHER : ☐							

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Page 3

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

150

Receive & Inspect for Damage & Mat'l Certs

0.00

150

Packaging

Memo

0.00

Packaging

6x 8016-04-28

155

QC5- Inspect part completeness to step on W/O

0.00

155

QC

Memo

0.00

Quality Control

6 **DAS 38**
APR 25 2016

180

Identify as per dwg & Stock Location CSK-015

0.00

180

Packaging

Memo

0.00

Packaging

IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV

6 **DAS 6**
9-89
APR 26 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
						QC / QA Coordinator Approval			

Root Cause				FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : ☐					
Misidentified ☐	Past Due ☐						

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Page 4

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.00							
Quality Control									

MLJ

APR 27 2016

MLJ

APR 26 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coor. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

Tuesday, January 26, 2016 3:17:36 PM

Page 1 /

Work Order ID: 140988

140988

Parent Item: 647.3914

647 3914

Parent Item Name: Breakaway Tip, Long

Start Date: 1/15/2016

Required Date: 1/26/2016

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP REV. A NEW ISSUE JFS 14/06/19 VERIFIED BY: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M7075T6B2.000X00.75 0		Purchased	No			100	f	13.1000	1.209	7.63579			

M7075T6B2 000X00 750

7075-T6 BAR 2.000' X 0.750"

7.325'

DAS
20
9-89 160909

Location

Loc Qty

Loc Code

MAT005

13.1

m131022

13.1

(134214)

7.325'

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
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Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : ☐	
Misidentified ☐	Past Due ☐																																																														



APICAL INDUSTRIES, INC.
dba DART AEROSPACE

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

ENGINEERING CHANGE NOTICE NO. 04948

SHEET 1 OF 2

DWG NO. 647.3900

REV: C

PREPARED BY: M. ANDECK

DATE: 05/04/15

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: DEFLECTORS

APPROVED BY:

ENGR

MFG

QC

EFF: CURRENT ORDER

ECR: D-15-01

REASON: REVISED TOLERANCE AND NOTES

NOTES:

1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12.

2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III,
CLASS 2, COLOR BLACK;

3. DEBURR AND BREAK ALL SHARP EDGES.

4. IDENTIFY IAW MPP-120.

5 APPLY F/N 3 AS REQUIRED TO ALL FAYING SURFACES
OF F/N 6, 7 & 8 UPON ASSY.

6 MAXIMUM OR MINIMUM DIMENSION AFTER FINISH.

7. .0625 HOLE MAY BE ADDED FOR FINISHING PURPOSES

8 FINISH: PRETREAT PR-148 ADHESION PROMOTER,
PRIME IAW MIL-P-23377J, TYPE I, CLASS N;
1-2 MIL MAX. APPLY FINISH AFTER ASSEMBLY.

9 FINISH: PRETREAT PR-148 ADHESION PROMOTER,
PRIME IAW MIL-P-23377J, TYPE I, CLASS N;
1-2 MIL MAX.

10 MATERIAL: ALUMINUM 2024-T3 PER AMS-QQ-A-250/4.

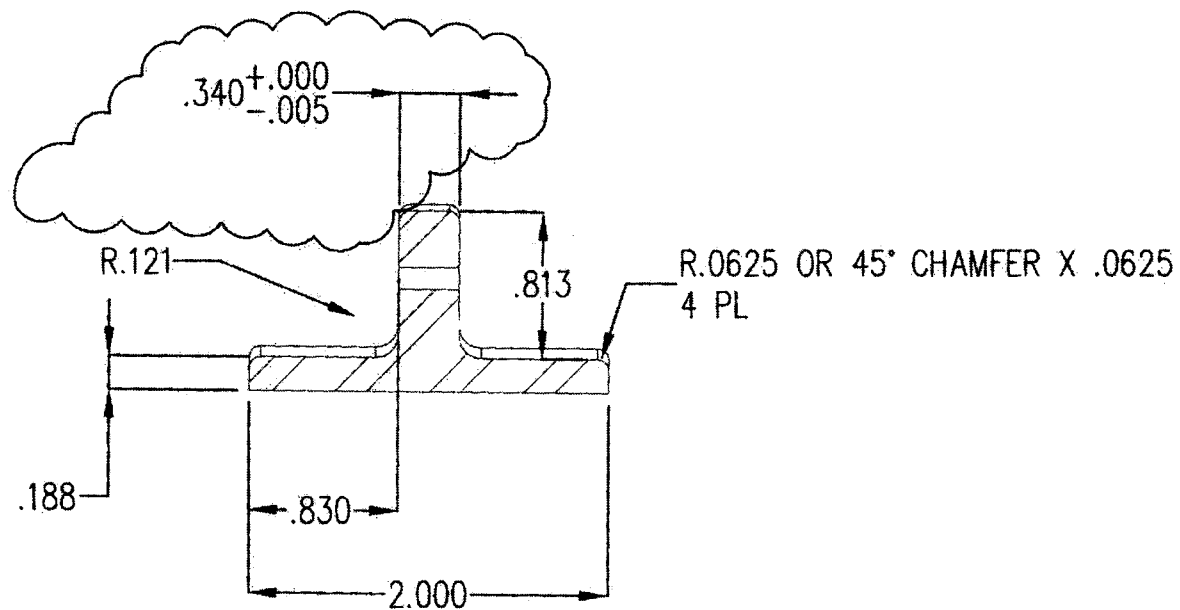
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

140988 M15

1601-28

SHEET 1, ZONE B1 IS:

11	R	647.3917	2			DOUBLER		
F/N	TC	PART NUMBER	.3903	.3902	.3901	DESCRIPTION	MATERIAL	SPECIFICATION
			QTY					
DOCUMENTS EFFECTED:							CHANGE CATEGORY	DER REVIEW REQUIRED
☐ PATTERN ☐ MDL ☐ INSTALL INSTRU ☐ ICA ☒ BOM							☐ MAJOR ☒ MINOR	☐ YES ☒ NO



SECTION AT-AT

SHEET 11, ZONE C1 IS:

APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

04556

SHEET 1 OF 2

DWG NO. 647.3900

REV: C

PREPARED BY D. MEJIA

DATE: 06/10/2014

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: DEFLECTORS

APPROVED BY: ENGR

MFG

QC

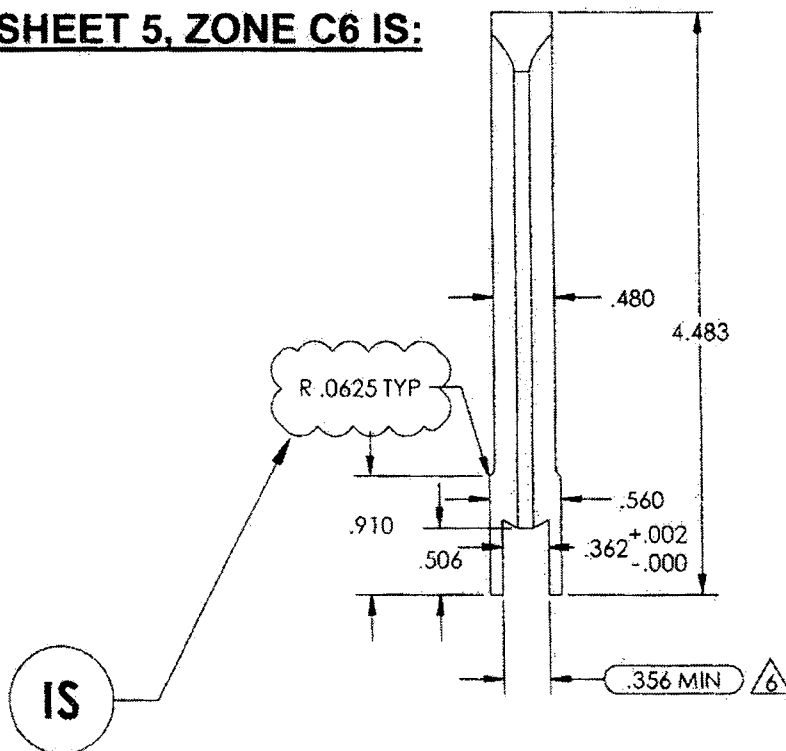
EFF. NEXT ORDER

TRANSACTION CODES (TC):
A-ADD
R-REVISE
C-CREATE
D-DELETE

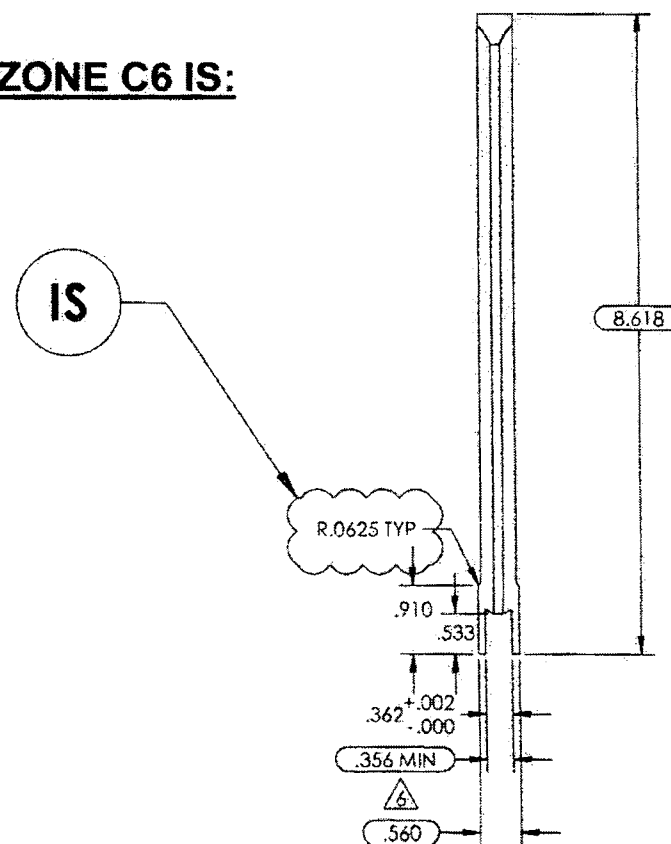
REASON: CHANGED P/N, DIMENSIONS & REVISED BOM

ECR: D-14-04

SHEET 5, ZONE C6 IS:

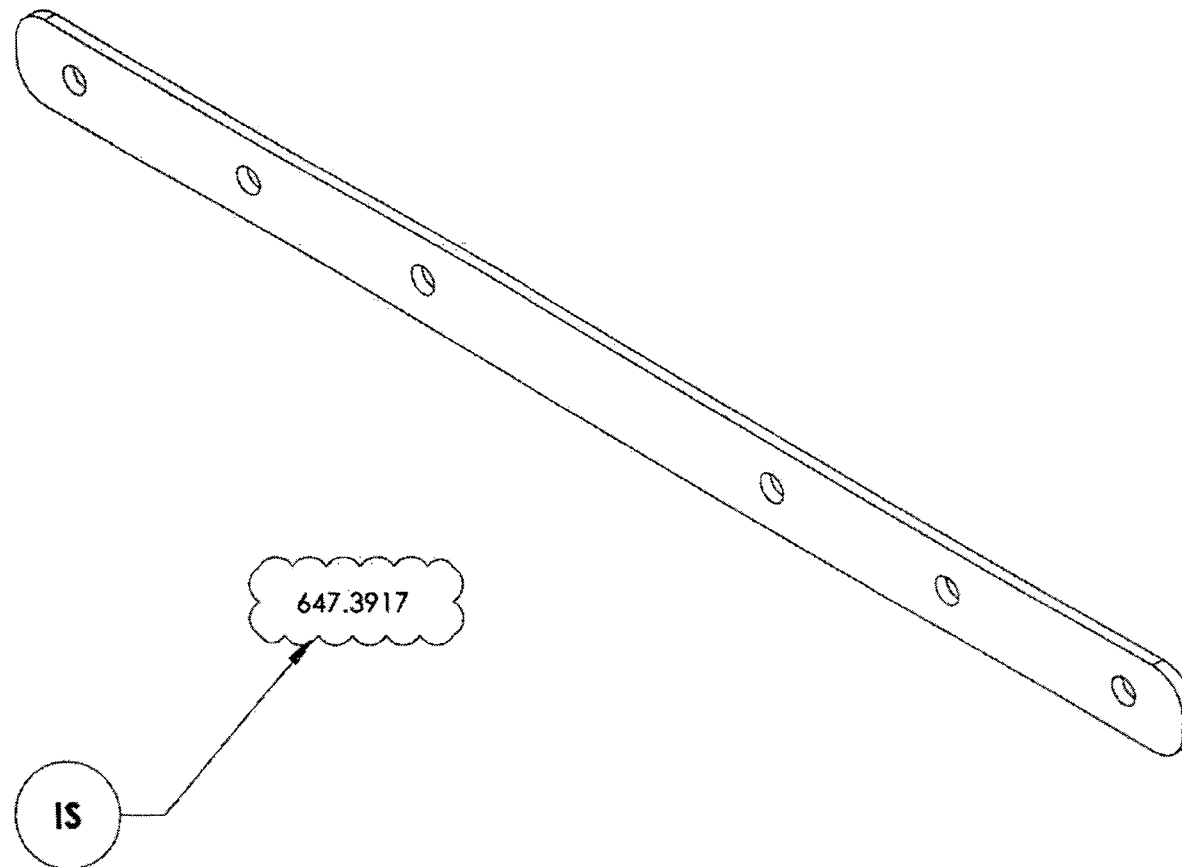


SHEET 6, ZONE C6 IS:



SHEET 1, BOM IS:

11	R	647.3917	2			DOUBLER		
F/N	TC	PART NUMBER	3903	3902	3901	DESCRIPTION	MATERIAL	SPECIFICATION
			QTY					
DOCUMENTS EFFECTED:							CHANGE CATEGORY	DER REVIEW REQUIRED
☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☒ BOM							☐ MAJOR ☒ MINOR	☐ YES ☒ NO

SHEET 12, ZONE B5 IS:

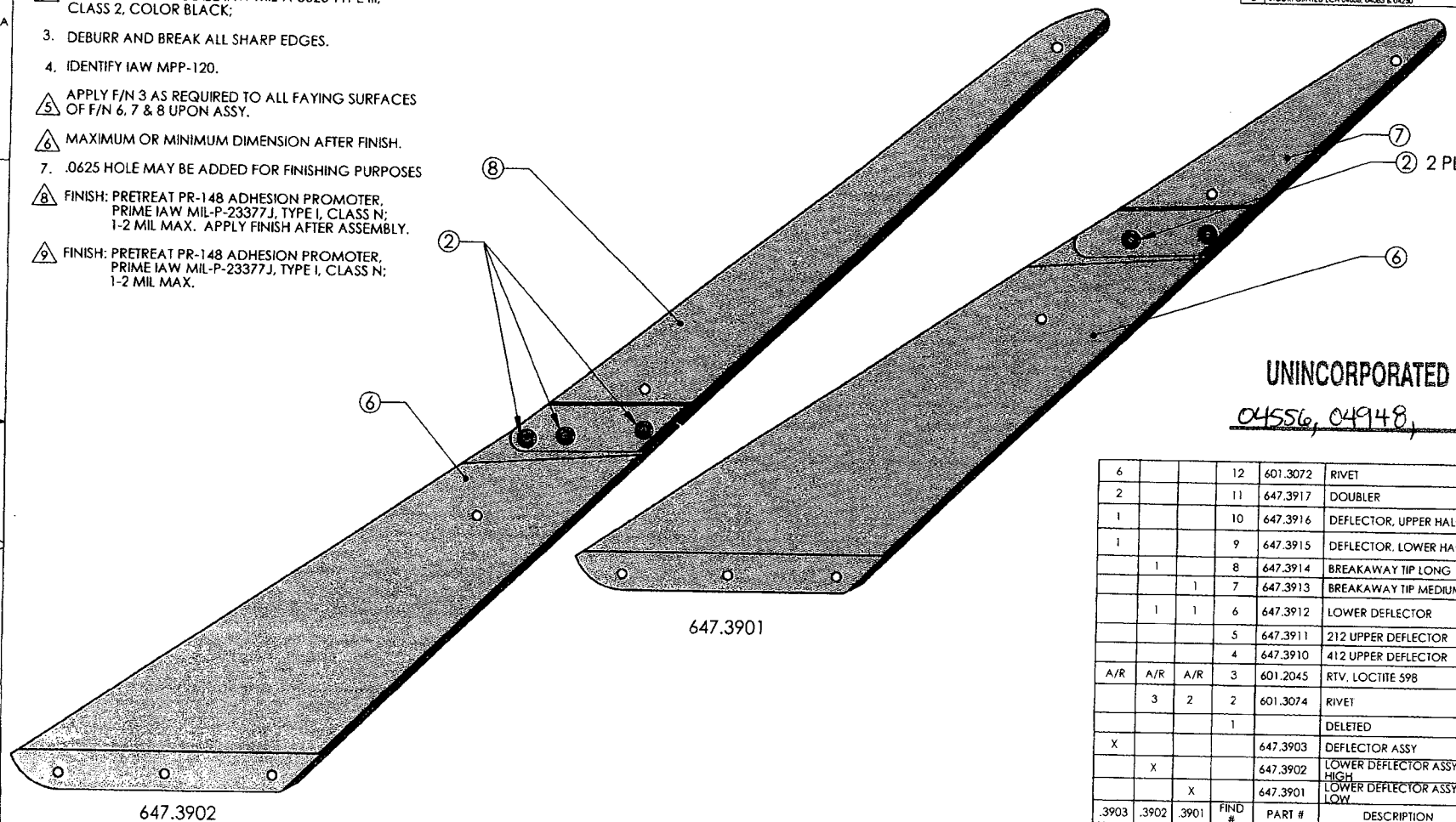
1 2 3 4 5 6 7 8

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NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12.
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK;
3. DEBURR AND BREAK ALL SHARP EDGES.
4. IDENTIFY IAW MPP-120.
- 5 APPLY F/N 3 AS REQUIRED TO ALL FAYING SURFACES OF F/N 6, 7 & 8 UPON ASSY.
- 6 MAXIMUM OR MINIMUM DIMENSION AFTER FINISH.
7. .0625 HOLE MAY BE ADDED FOR FINISHING PURPOSES
- 8 FINISH: PRETREAT PR-148 ADHESION PROMOTER, PRIME IAW MIL-P-23377J, TYPE I, CLASS N; 1-2 MIL MAX. APPLY FINISH AFTER ASSEMBLY.
- 9 FINISH: PRETREAT PR-148 ADHESION PROMOTER, PRIME IAW MIL-P-23377J, TYPE I, CLASS N; 1-2 MIL MAX.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE RELEASE: PR1		N/C
N/C	MINI RELEASE	09/10/09	P. BRAVO
A	INCORPORATED ECN 02864, 03829 & 03515	07/24/12	P. BRAVO
B	INCORPORATED ECN 04025	08/02/13	P. BRAVO
C	INCORPORATED ECN 04028, 04085 & 04230	11/18/13	P. BRAVO



UNINCORPORATED ECN(s)

04556, 04948,

6		12	601.3072	RIVET	CR3213-6-9	
2		11	647.3917	DOUBLER		
1		10	647.3916	DEFLECTOR, UPPER HALF	△	△
1		9	647.3915	DEFLECTOR, LOWER HALF	△	△
	1	8	647.3914	BREAKAWAY TIP LONG	△	△△
		7	647.3913	BREAKAWAY TIP MEDIUM	△	△△
	1	6	647.3912	LOWER DEFLECTOR	△	△△
		5	647.3911	212 UPPER DEFLECTOR	△	△△
		4	647.3910	412 UPPER DEFLECTOR	△	△△
A/R	A/R	A/R	3	601.2045	RTV, LOCTITE 598	△
	3	2	2	601.3074	RIVET	M520470AD 6-12
		1		DELETED		
X			647.3903	DEFLECTOR ASSY		△
	X		647.3902	LOWER DEFLECTOR ASSY HIGH		
		X	647.3901	LOWER DEFLECTOR ASSY LOW		
.3903	.3902	.3901	FIND #	PART #	DESCRIPTION	MATL SPEC

QTY	ORIGINAL DATE (MM-DD-YY)	09-10-09												
NEXT ASSY (S)	DRAWN BY	TOSCHUP												
647.3800	CHECKED BY	OSCHUP												
	DRAWING APPROVAL													
	P. BRAVO													
	09-10-09													
	CONTRACT NO.													
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°														
<table border="1"> <tr> <td colspan="2">PARTS LIST</td> </tr> <tr> <td colspan="2">APICAL INDUSTRIES</td> </tr> <tr> <td colspan="2">2608 TEMPLE HEIGHTS DR.</td> </tr> <tr> <td colspan="2">OCEANSIDE, CA. 92056-3512 (760)724-5300</td> </tr> <tr> <td colspan="2">DEFLECTORS</td> </tr> <tr> <td>SHEET</td> <td>1 OF 12</td> </tr> </table>			PARTS LIST		APICAL INDUSTRIES		2608 TEMPLE HEIGHTS DR.		OCEANSIDE, CA. 92056-3512 (760)724-5300		DEFLECTORS		SHEET	1 OF 12
PARTS LIST														
APICAL INDUSTRIES														
2608 TEMPLE HEIGHTS DR.														
OCEANSIDE, CA. 92056-3512 (760)724-5300														
DEFLECTORS														
SHEET	1 OF 12													

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.125 X 45.0° TYP

SECTION B-B

Ø.177 THRU 3PL

.266 X 17.9°

DETAIL A

.700
 .340^{+.000}_{-.002}
 .346 MAX
 .035 X 45.0° TYP

DETAIL C

.375
 15.896
 C

647.3911

R.279
 15.896
 15.304
 15.046
 R3.406
 B
 B
 Ø.189
 40.2°
 6.446
 .312
 0
 18.502
 18.127
 35.8°
 10.702
 8.599
 6.253
 1.700
 .777
 0
 A

ORIGINAL DATE 10-10-99		APICAL INDUSTRIES	
DRAWN BY J. BRAYO		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
CHECKED BY P. BRAYO		DEFLECTORS	
CONTRACT NO. 146		647.3900	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		SIZE B	REV. C
		CAGE CODE 07M26	SHEET 2 OF 12
		DWG. NO. 647.3900	SCALE NONE

.125 X 44.9°

258

- R3.274 $\varnothing .189$

$$\begin{array}{r} 10.842 \\ 10.433 \\ \hline 9.986 \end{array}$$

Ø.189

6.457

1.744

.312

0-

15.559

15.291

14.677

10.863

8.803

6.384-

1800—

914 -

0

Ø.177 THRU 3PL

- .120

7.788

 $.274 \times 17.9^\circ =$

2.110±.002

 $4.220 \pm .002$

— R1.100

.886

DETAIL D

.700

-.030 X 45.0° TYP

$.340^{+.000}$ —

△ 346 MAX

DETAIL F

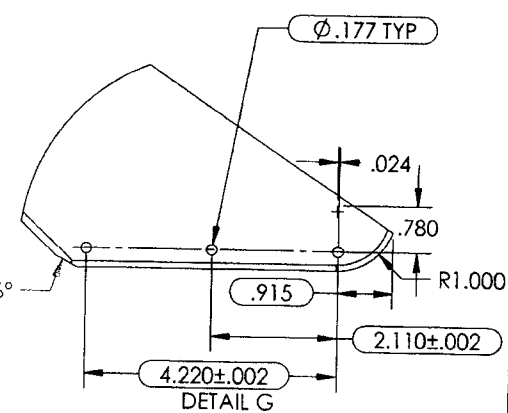
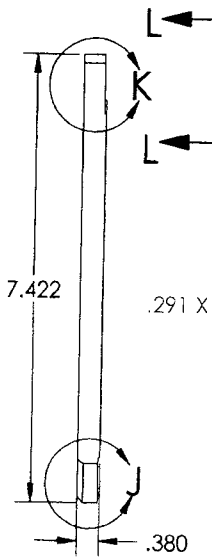
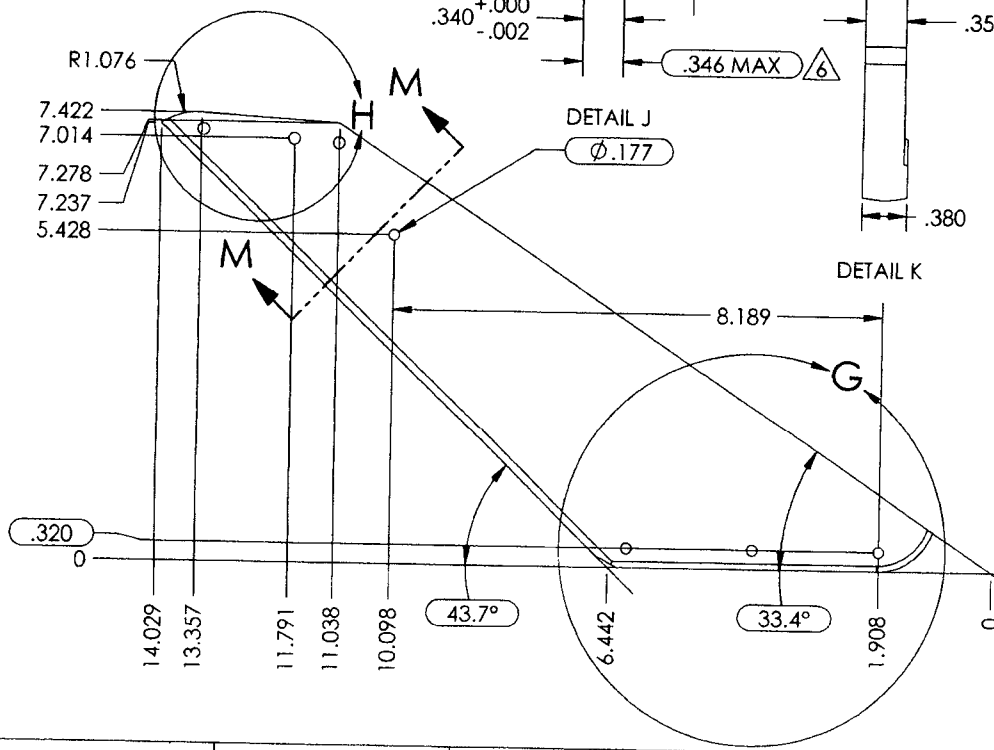
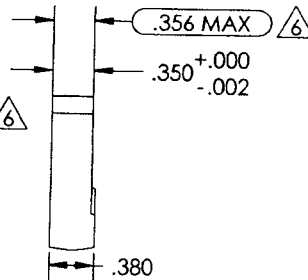
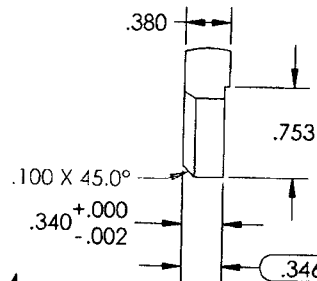
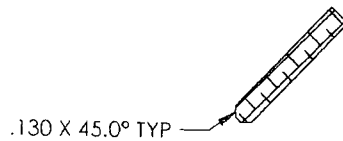
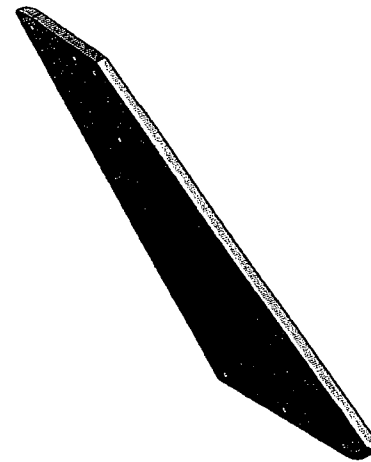
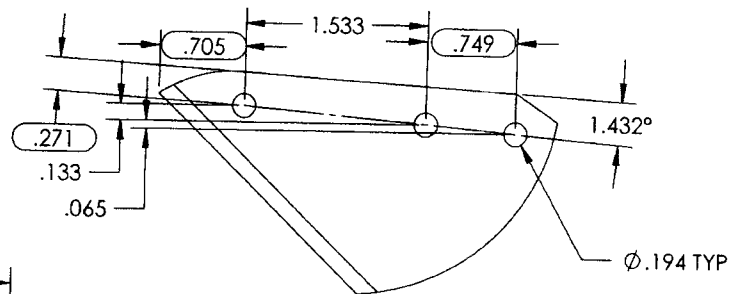
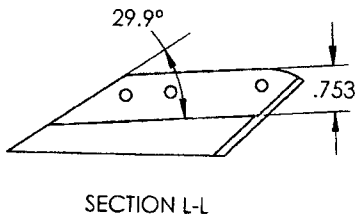
10.850

647.3910

10

ORIGINAL DATE (M/D/YR) 06-10-07	APICAL INDUSTRIES		
DRAWN BY D.SCHUP	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300		
DRAWING APPROVAL P. BRAVO	DEFLECTORS		
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .003 3 PLACE DECIMALS ± .001 ANGLES ± .5°	SIZE B	GAGE CODE D7M2M6	DWG. NO. 647.3900
	SCALE: NONE		REV. C
	SHEET		3 OF 12

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ORIGINAL DATE (DD-MN-YY) 08-10-07		APICAL INDUSTRIES	
DRAWN BY D.SCHUP	DESIGNED BY D.BARBER	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DRAWING APPROVAL P. BRAVO	CONTRACT NO.	DEFLECTORS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		SRE (CA) CODE B 07M26	DWG NO. 647.3900
		SCALE NONE	REV. C SHEET 4 OF 12

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.180 X 45.0° TYP

SECTION N-N

R.269

R3.534

SECTION AD-AD

3.135

1.504

.417

3.376

.130

R1.675

.917

4.483

3.696

Ø.189 THRU 2PL

Ø.194 THRU 2PL

1.196

.506

.337

0

R.264

41.9°

31.4°

1.780

3.414

3.284

4.029

6.618

7.036

7.749

8.007

647.3913

AD

AD

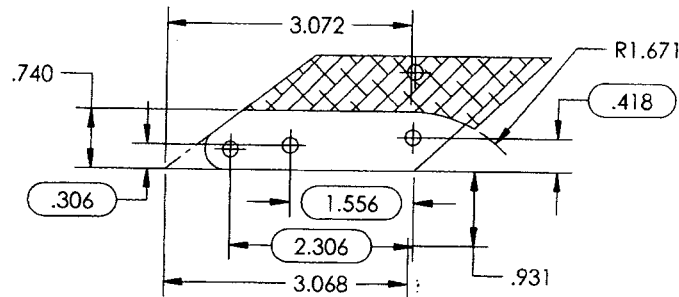
.356 MIN

ORIGINAL DATE (MM/DD/YY) 09-10-01		APICAL INDUSTRIES	
DRAWN BY D.SCHUR		2608 TEMPLE HEIGHTS DR.	
CHECKED BY D.BARKER		OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL P. BRAVO		DEFLECTORS	
CONTRACT NO.		647.3900	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		SCALE NONE	SHEET 5 OF 12
SHEET	CAGE CODE	DWG. NO.	REV.
B	07M26	647.3900	C

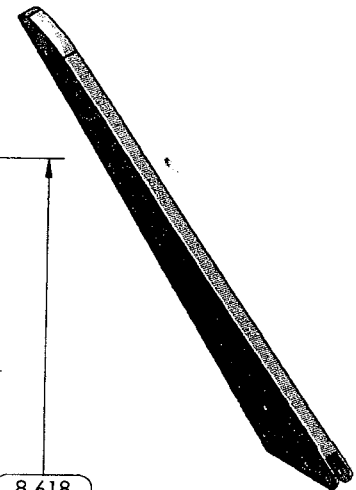
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.175 X 45.0° TYP

SECTION T-T



SECTION AB-AB



647.3900

8.618

AB

AB

Ø.189 THRU 2PL

Ø.194 THRU 3PL

R.050 TYP

R.255

.362^{+0.002}_{-0.000}

.356 MIN

6

.560

ORIGINAL DATE
UNCL-151 07-10-00
DRAWN BY
D.SCHUR
CHECKED
D.BARKER
DRAWING APPROVAL
P. BRAY
DATE
C-100000

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

DEFLECTORS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
2 PLACE DECIMALS ±.01
3 PLACE DECIMALS ±.005
ANGLES ±.5°

SHEET	CAGE CODE	DWG. NO.	REV
B	07M26	647.3900	C
SCALE NONE			SHEET 6 OF 12

R.267

R3.354

8.611

7.876

T

T

Ø.189 THRU 2PL

Ø.194 THRU 3PL

R.050 TYP

R.255

.362^{+0.002}_{-0.000}

.356 MIN

6

.560

ORIGINAL DATE
UNCL-151 07-10-00
DRAWN BY
D.SCHUR
CHECKED
D.BARKER
DRAWING APPROVAL
P. BRAY
DATE
C-100000

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

DEFLECTORS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
2 PLACE DECIMALS ±.01
3 PLACE DECIMALS ±.005
ANGLES ±.5°

SHEET	CAGE CODE	DWG. NO.	REV
B	07M26	647.3900	C
SCALE NONE			SHEET 6 OF 12

12.148

11.192

10.597

42.83°

37.1°

3.875

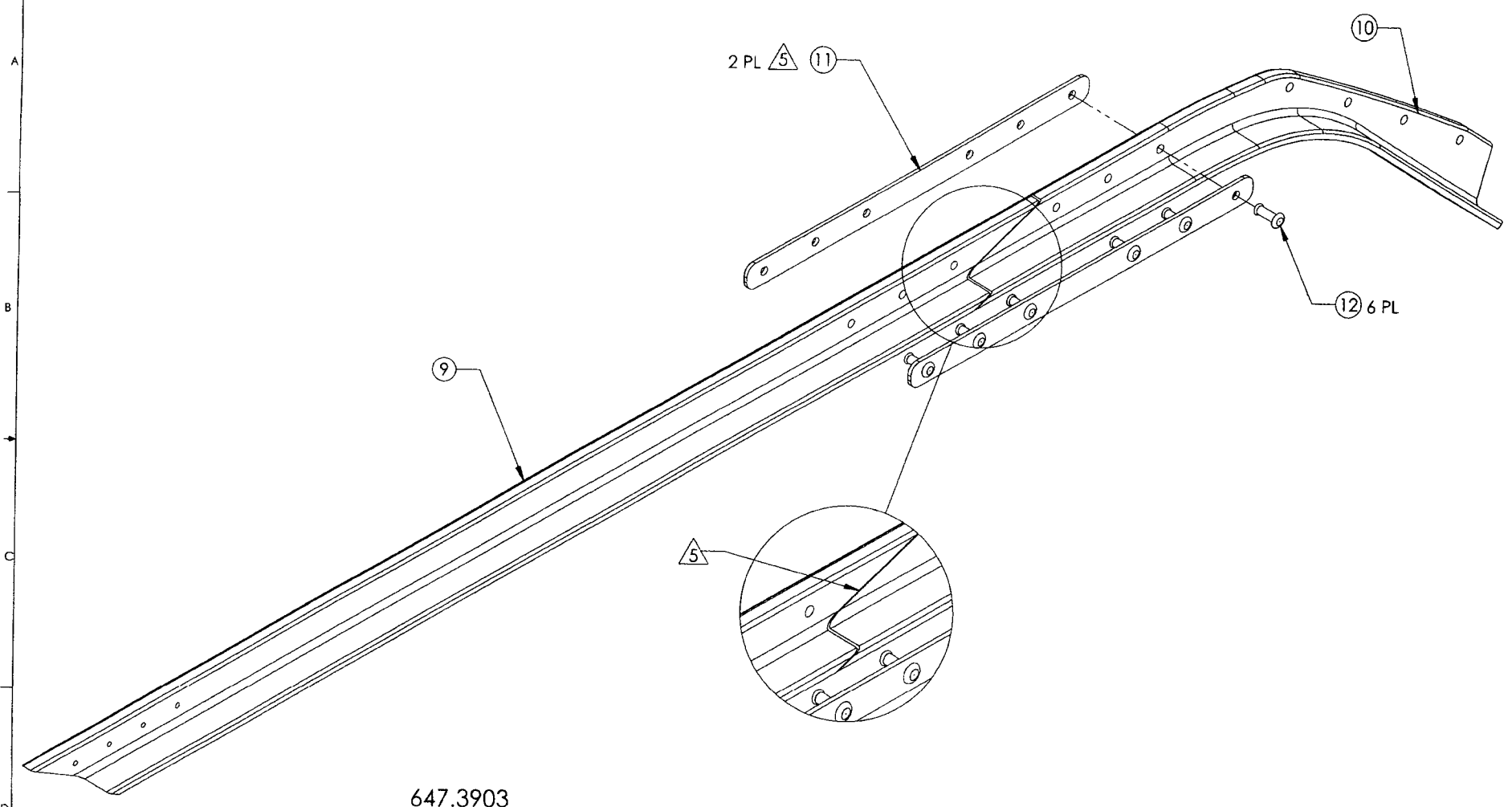
3.129

3.123

.824

0

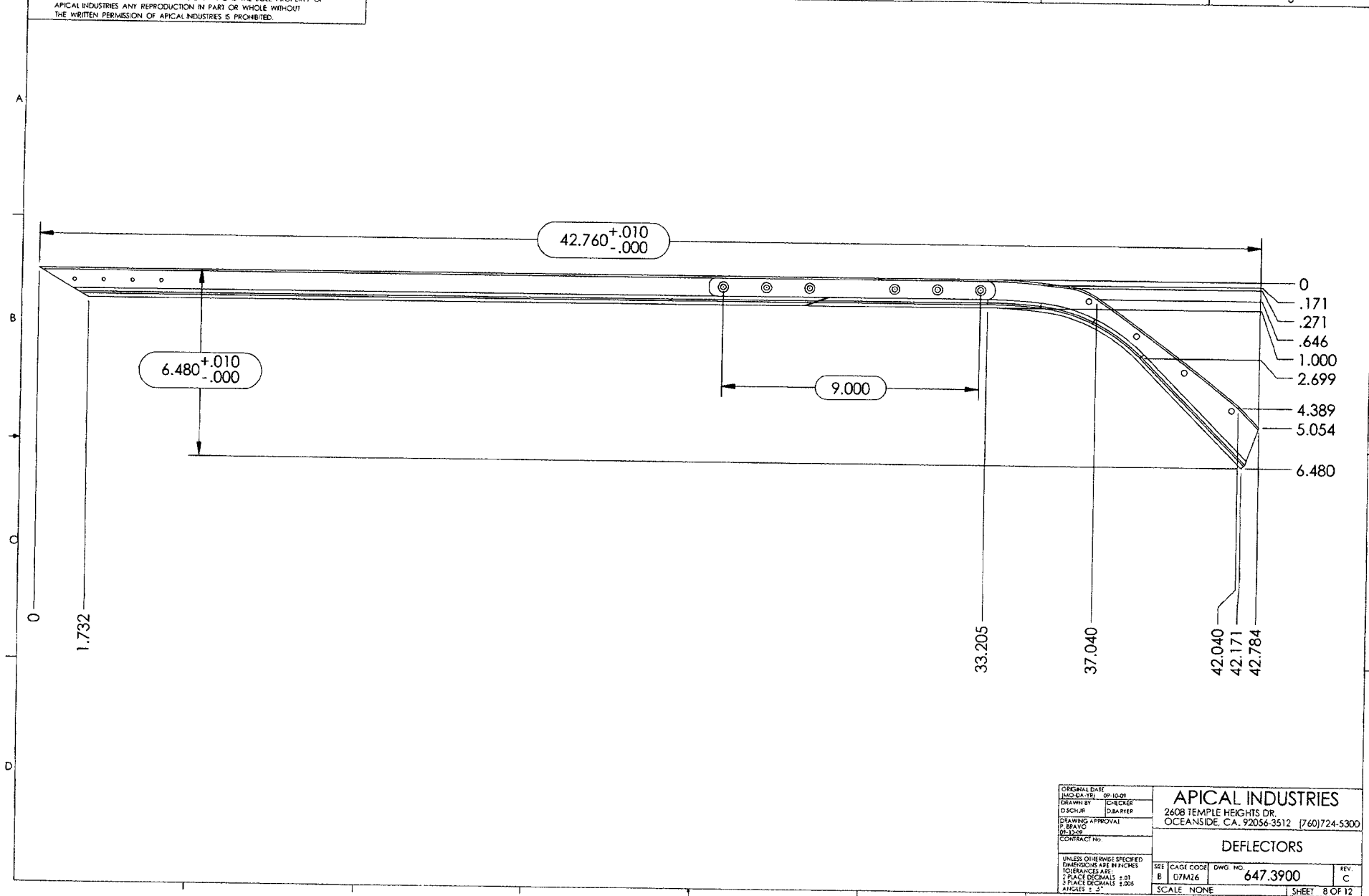
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647.3903

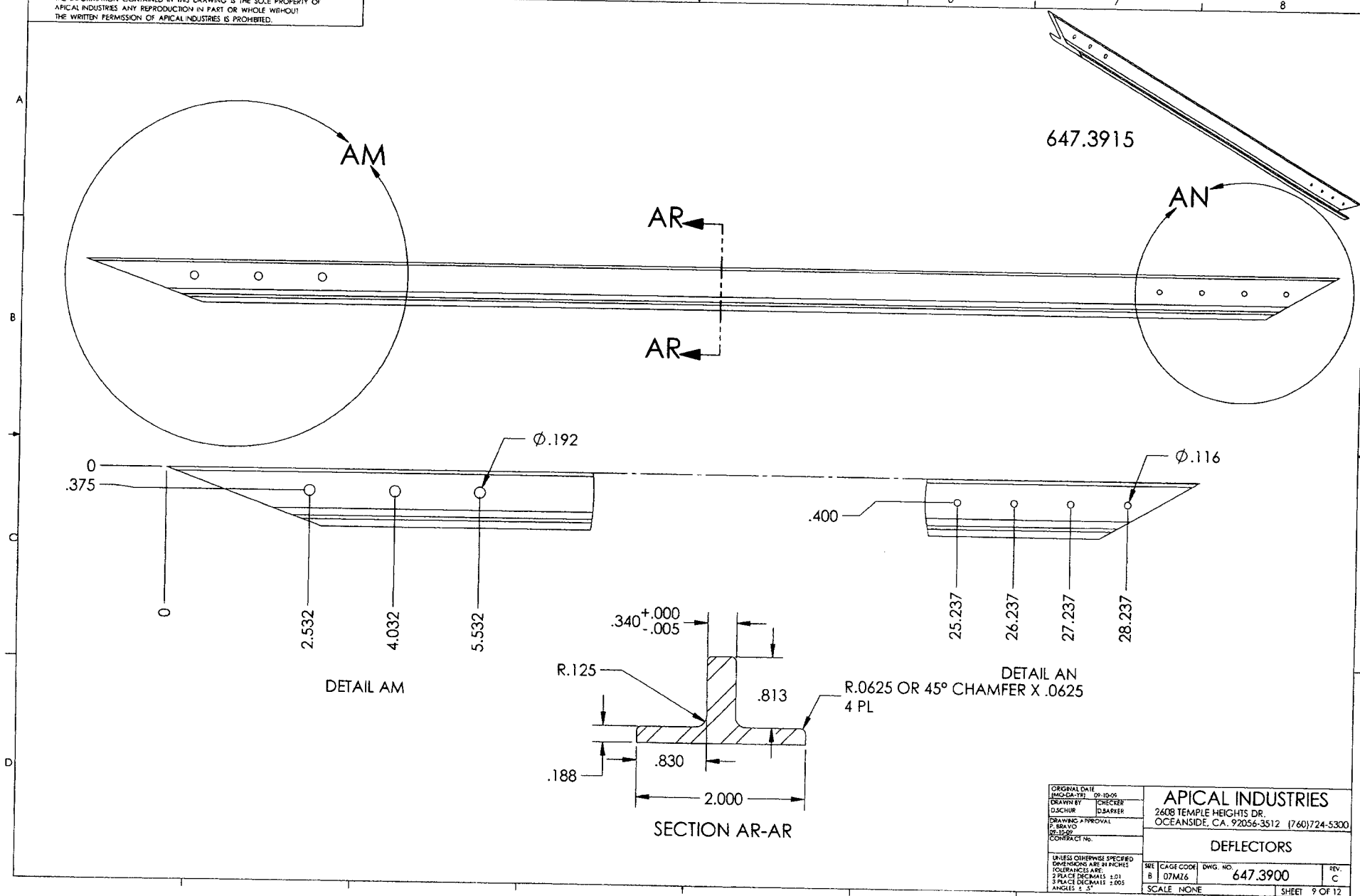
ORIGINAL DATE 05-10-09		APICAL INDUSTRIES	
DRAWN BY DACHUY	CHECKED D.B. REE	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL P. BRAVO		DEFLECTORS	
CONTRACT NO.		REV. NO. B	REV. C
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		SCALE NONE	SHEET 7 OF 12

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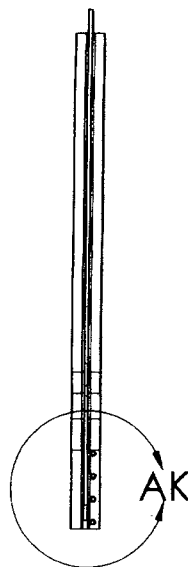
ORIGINAL DATE (MM-DD-YY) 09-10-09		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWN BY DISCHUR	CHECKER DISCHUR		
DRAWING APPROVAL P. BRAVO	DATE 09-10-09		
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± .5°		SEE CAGE CODE B 07M16	DWG. NO. 647.3900
SCALE: NONE		REV. C SHEET 8 OF 12	

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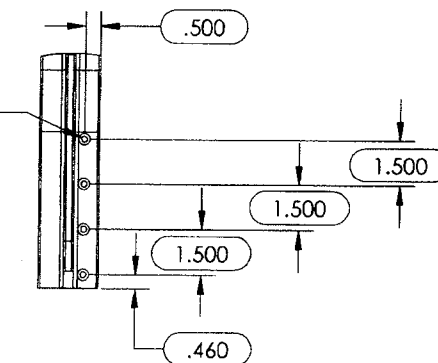


ORIGINAL DATE (MCH-DA-YR) 09-10-00		APICAL INDUSTRIES 2408 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300		
DRAWN BY D.J. CHUR	CHECKED BY D. BARNER			
DRAWING APPROVAL P. BRAVO	DATE 09-10-00			
CONTRACT NO.				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		SHEET B 07M26	DWG. NO. 647.3900	REV. C
SCALE NONE		SHEET 9 OF 12		

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4X $\varnothing .196 \pm .010$ THRU ALL
 $\checkmark \varnothing .385 \pm .020 \times 100^\circ \pm 1.000^\circ$



DETAIL AK

647.3915

ORIGINAL DATE JUN 04 1991 09-10-69		APICAL INDUSTRIES	
DRAWN BY D. SCHULP		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
CHECKED BY D. BARBER		DEFLECTORS	
DRAWING APPROVAL P. BEAVO		DWG. NO. 647.3900	
CONTRACT NO.		REV C	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS $\pm .01$ 3 PLACE DECIMALS $\pm .005$ ANGLES $\pm .5^\circ$		SCALE NONE SHEET 10 OF 12	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO32009**

Purchase Order Date 4/12/2016

PO Print Date 4/15/2016

Page Number 2 of 4

Order From :

VC-ATG001

A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE ROAD
ROCKLAND, ON K4K 1T2
CANADA

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

613-446-4544

Ship To Contact

Ship To Phone

Ship Via:

VENDOR'S TRUCK

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

FCA - (Free Carrier)

Line Total: \$61.00

4	142643	646.9910 STRUT REV. N/C	4/22/2016	25.00	\$11.90	\$297.50
---	--------	----------------------------	-----------	-------	---------	----------

Yes

4/22/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

Line Total: \$297.50

5	141025	647.0310 CHANNEL REV. N/C	4/22/2016	6.00	\$11.10	\$66.60
---	--------	------------------------------	-----------	------	---------	---------

Yes

4/22/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

Line Total: \$66.60

6	140988	647.3914 BREAKAWAY TIP REV. C	4/22/2016	6.00	\$11.55	\$69.30
---	--------	----------------------------------	-----------	------	---------	---------

Yes

4/22/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

SP/6 24-25

Note:

4/15/2016



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 911581

Date: 22-Apr-16

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

CHANTAL LAVOIE
DART AEROSPACE LTD
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
Canada

Ph: 613 632-9577

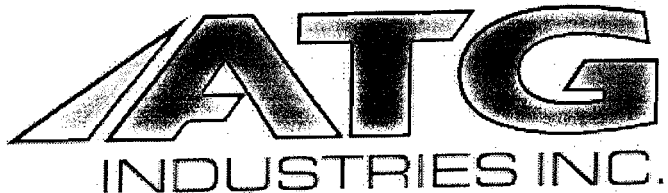
Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms		Ship Via	
Quantity	Description		
	PLEASE REFERENCE THE PACK LIST NUMBER ON ALL CORRESPONDENCE TO THIS SHIPMENT. IF YOU HAVE ANY QUESTIONS, PLEASE CALL AT (613) 446-4544.		
12 ea	Part: 646.3310 UPPER CUTTER Job: 19433	Rev: N/C PO: PO32009	Line: 1
27 ea	Part: 646.3010 LH HALF Job: 19444	Rev: N/C PO: PO32009	Line: 10
10 ea	Part: 646.3011 RH HALF REV Job: 19434	Rev: N/C PO: PO32009	Line: 2
10 ea	Part: 646.3813 STRUT BRACKET Job: 19435	Rev: N/C PO: PO32009	Line: 3
25 ea	Part: 646.9910 STRUT Job: 19436	Rev: N/C PO: PO32009	Line: 4
6 ea	Part: 647.0310 CHANNEL Job: 19437	Rev: N/C PO: PO32009	Line: 5
6 ea	Part: 647.3914 BREAKAWAY Job: 19438	Rev: C PO: PO32009	Line: 6
1 ea	Part: ADMINISTRATION FEE ADMINISTRATION FEE Job: 19439	Rev: PO: PO32009	Line: 8

Sp/6 of 28



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 911581

Date: 22-Apr-16

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

CHANTAL LAVOIE
DART AEROSPACE LTD
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
Canada

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms		Ship Via	
Quantity	Description		
20 ea	Part: 650.9201 Eyelet Bracket Job: 19443	Rev: A PO: PO32009 Line: 9	
DATE: <u>APRIL 22, 2016</u>			
CERTIFIED SIGNATURE: <u>[Signature]</u>			
RECEIVER SIGNATURE: <u>[Signature]</u>			
Note: This Packing Slip may contain parts that have been PLATED. Items that are plated may be subject to natural tarnishing and it is suggested that they be inspected within 24 hours of receipt.			
CERTIFICATE OF CONFORMANCE			
A.T.G. INDUSTRIES INC. CERTIFIES THAT ALL ITEMS IN THIS SHIPMENT CONFORM TO REQUIREMENTS.			
MADE IN CANADA.			